

REMARKS

Claim Rejections 35 USC § 112.

Claim 25 has been corrected by canceling the redundant language "selected from the group consisting of" as noted by the Examiner. Minor typographical errors have been corrected in claims 12 and 13 as indicated.

Claim Rejections 35 USC § 103.

Claims 1-6, 9-17 and 24-25 have been rejected under 35 USC § 103 over Sharma in view of Hornak. The two independent claims, 1 and 13, have a slightly different focus, and accordingly this rejection will be responded to separately for each of these independent claims.

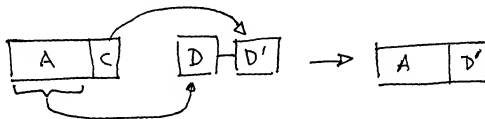
Claim 1 has been amended in view of the Examiner's rejection and the prior art to indicate that each of the two error correction codes (EDCs) is based on the entirety of the message data. Sharma describes a message, for example 50 in Fig. 2A, having multiple correction codes, for example 96, 100, 98 and 102. As is apparent from the discussion of Fig. 2, however, each error correction code relates to only a portion (a "flit" 64, 66, 68 and 70) of the message 50.

In distinction, the present invention provides two error detection codes that are both based on the entirety of the message. Thus, claim 1, as amended, may be distinguished from Sharma.

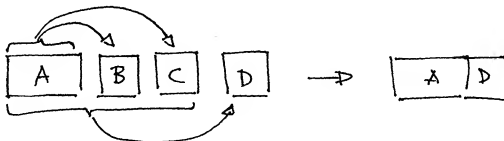
This additional distinction from Sharma is not obvious in light of the teaching of Sharma and Hornak because one trying to control network errors would not normally produce two error detection codes that both monitor the same message unit. If higher reliability were desired, the teaching of the prior art would be to provide a single longer error detection code, vastly simplifying the hardware and providing exactly the same benefit in detecting network interference and the like. The present invention differs from the prior art in the recognition that two codes may embody different code protocols, thus reducing the possibility of systematic hardware failure before transmission on the network. These are concerns that are neither identified nor remedied by the Sharma or Hornak references. Accordingly, it is believed that one of ordinary skill in the art would not be led to the present invention from a review of Sharma and Hornak absent an independent recognition of this problem and its solution, that is not taught in the prior art.

Claim 13 describes a system in which error correction codes are passed in “phantom”, something that is similar to the invention of Sharma. In Sharma, a single “poison” bit (which is arguably a small error detection code) is not actually transmitted, but is used to modify the error detection code that is in fact transmitted.

Referring to the following figure, Sharma takes message data A, as stored in memory, with “poison” bit C indicating an error in that data, and provides A and C to the network circuitry, which calculates an error detection code D from message A. The network circuitry then modifies D by the “poison” bit producing D'. Messages A and error detection code D, as possibly modified, are then transmitted, eliminating the need to transmit C.



In contrast, however, the present invention, per claim 13, again computes two error detection codes, B and C, from message A, and then calculates a third overall error correction code D, transmitting only A and D; thus, eliminating the extra band width that would be required to transmit B and C.



These two approaches are different insofar that Sharma does not calculate two error detection codes as required per the claims, and a third arguably redundant overall detection code as required by the claims. They are also fundamentally different in terms of their effect. If the data being sent in Sharma is uncorrupted at the time of transmission, the “poison” bit C is

essentially not transmitted; whereas, in the present invention, error correction codes B and C are always implicitly transmitted in phantom form so as to provide the benefits of dual error detection codes.

As with claim 1, what is missing in the prior art is any recognition of the benefit of a second error detection code on the same data (and a third overarching EDC) and teaching that the burden of the second, arguably redundant, error correction code can be mitigated with the phantom transmission technique. Sharma and Hornak provide no suggestion of a problem of errors in EDC computation mechanisms before transmission of data, or teaching of any mechanism that might be used to catch such systematic hardware failures.

In light of these comments and remarks and amendments, it is believed that claims 1-25, as amended, are now in condition for allowance, and allowance is respectfully requested.

The Examiner is encouraged to contact the undersigned if minor amendments are needed in the figures, specification, or claims to bring this case into allowance.

Very truly yours,

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